

REMARKS

The title has been amended, as required by the Examiner.

A new Abstract is attached as a separate sheet, as required by the Examiner.

A Letter Submitting Formal Drawings is submitted herewith, together with the formal drawings, as required by the Examiner.

The Specification has been amended to remove the objections pointed out by the Examiner.

Claims 1-10 have been cancelled, and replaced by new claims 11-21, which have been carefully amended to more clearly distinguish over the cited prior art. In particular, claims 1-4, 7, and 8, which were non-elected and withdrawn from consideration, stand cancelled without prejudice. Independent method claim 5 has been redrafted as new independent method claim 11, which now recites that the step of providing a sensor having a color filter thereover includes providing a sensor comprising a sensor array having alternate lines offset by half a pixel spacing and diagonally coupled pixels on successive lines (see e.g. Figure 5), and providing a color filter having repeating R, G, and B patterns offset on successive lines so that R pixels are arranged diagonally, G pixels are arranged diagonally, and B pixels are arranged diagonally. New dependent claim 12 corresponds to cancelled dependent claim 6. New dependent claims 13 and 14 now contain the limitation (previously in independent claim 5) that the step of providing a lens system comprises providing a motion picture

film camera type of lens system. Independent apparatus claim 9 has been redrafted as new independent apparatus claim 15, which now recites that the sensor comprising a sensor array having alternate lines offset by half a pixel spacing, and diagonally coupled pixels on successive lines (see e.g. Figure 5), and the color filter has repeating R, G, and B patterns offset on successive lines so that R pixels are arranged diagonally, G pixels are arranged diagonally, and B pixels are arranged diagonally. New dependent claim 16 corresponds to cancelled dependent claim 10. Claims 17 and 18 now contain the limitation (previously in independent claim 9), that the lens system is a motion picture film type of lens system. New dependent claims 19, 20, and 21 recite that the means for producing electronic video signals from the output of the sensor includes a first register coupled with R pixels of a group of lines, a second register coupled with the G pixels of the group of lines, and a third register coupled with the B pixels of the group of lines (again, see e.g. Figure 5).

The amended claims clearly and patentably distinguish over the documents cited by the Examiner.

The Yamada et al. U.S. Patent 6,577,341 discloses an imaging apparatus that is designed to reduce the influence of movement, e.g. hand movement or object movement, when taking a high resolution picture image. It can be noted initially that Yamada et al. is a complex technique that deals with processing of still picture information, rather than electronic video for motion picture film origination. In Yamada

et al., there are provided “moving means for moving an image forming point of the picture image light inputted to the imaging device to predetermined first and second positions.” The “moving means” is controlled by “control means” which operates to causing the moving means to move the image forming point of the picture image light either to a first or a second position. This is explained at column 5 of Yamada et al. and, in much greater detail in various portions the subsequent Yamada et al.

Specification. For example, above the Figure 44, which is referenced by the Examiner, is Figure 43 which shows the positional relationship between different image forming positions, in relation to the image shifting. As part of achieving its objective, the Yamada et al. technique proposes several different filters, including the Figure 44 filter (referenced by the Examiner), which has lines shifted by $PH/2$, and, for example, Figure 55, which instead has columns shifted by $PV/2$. However, these filters are being used for a different purpose than Applicant's claimed method and system, which is not dealing with correction in motion-shifted still pictures but, rather, defining a novel technique and system for a video camera that produces electronic video signals, and which has the advantage of being usable for motion picture film origination.

Accordingly, it is seen that other important steps or elements of Applicant's amended claims are not disclosed or suggested by Yamada et al. For example, new claim 11 recites, inter alia, that the step of providing a sensor having a color filter thereover includes providing a sensor comprising a sensor array having alternate lines offset by

half a pixel spacing and diagonally coupled pixels on successive lines, and claim 15 recites, inter alia, that the sensor comprises a sensor array having alternate lines offset by half a pixel spacing, and diagonally coupled pixels on successive lines. Reference can be made, for example, to Figure 5 and the accompanying description. The Yamada et al. citation, which is doing something quite different, contains no such teachings. Also, dependent claims 13, 14 and 17, 18 recite that the lens system is a motion picture type of lens system. In this regard, the Examiner points to optical system 33 in Figure 1 of Yamada et al., but, as previously pointed out, Yamada et al. deals with still pictures, and has different optics. As was noted in the background portion of Applicant's Specification, it would be advantageous to have a practical electronic color video camera that could directly shoot the action to obtain color video from which good quality color motion picture film could ultimately be produced, but this was not previously achieved. A major reason has been that the expensive high quality lenses used in motion picture film cameras have optical characteristics and requirements that are not readily adaptable to electronic video cameras. The claimed invention overcomes this limitation.

Dependent claims 19, 20 and 21 provide even further distinction over the prior art. These claims recite that the means for producing electronic video signals from the output of the sensor includes a first register coupled with R pixels of a group of lines, a second register coupled with the G pixels of the group of lines, and a third register

coupled with the B pixels of the group of lines. Reference can be made, for example, to Figure 5 and the accompanying description. There is no such teaching in the cited prior art, especially when taken in the context of the sensor array having diagonally coupled pixels on successive lines, as recited in the independent claim 15 from which these claims 19, 20, and 21 ultimately depend.

The distinctions of the amended claims over Yamada et al. are also applicable to the cited Lu et al. (U.S. 5,805,217) and Morisawa et al. (U.S. 4,611,243) citations.

Morisawa discloses an electronic camera that uses an optical low-pass filter and employs a focal plane shutter.

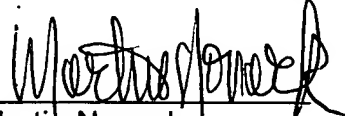
Lu et al. discloses a technique and system for interpolating intensity values for a color component array. One of the filter patterns that facilitates interpolation in Lu et al. is shown in Figure 4A, referenced by the Examiner. However, there is no teaching or suggestion of the steps or elements of Applicant's amended claims that were summarized above, for example the limitations of claim 11 which recite that the step of providing a sensor having a color filter thereover includes providing a sensor comprising a sensor array having alternate lines offset by half a pixel spacing and diagonally coupled pixels on successive lines, and providing a color filter having repeating R, G, and B patterns offset on successive lines so that R pixels are arranged diagonally, G pixels are arranged diagonally, and B pixels are arranged diagonally, or the limitations of claim 15 which recite that the sensor comprises a sensor array having alternate lines

offset by half a pixel spacing, and diagonally coupled pixels on successive lines, and said color filter having repeating R, G, and B patterns offset on successive lines so that R pixels are arranged diagonally, G pixels are arranged diagonally, and B pixels are arranged diagonally. As previously summarized, the limitations of dependent claims 19-21 provide even further distinctions over the prior art, and the further citations, Lu et al. and Morisawa, contain no teachings which anticipate these claims or render them obvious.

In view of the foregoing, it is believed that the Application is now in condition for allowance, and such favorable action is earnestly solicited. In the event that the Examiner is not persuaded, it is asked that he kindly telephone the undersigned Counsel collect so that any remaining issues can be resolved.

Delray Beach, FL 33484
Tel. (561) 498-4706
Fax. (561) 498-4027
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Respectfully submitted,


Martin Novack
Registration No. 25,164
Attorney for Applicant(s)

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